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Attorney's Docket No. 5577-233/RSW920010031US1 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Aiken, Jr. *et al.*
Serial No.: 09/862,968
Filed: May 22, 2001
Confirmation No.: 9829
Group Art Unit: 2154
Examiner: Vu, Viet Duy
For: **METHODS, SYSTEMS AND COMPUTER PROGRAM PRODUCTS FOR PORT ASSIGNMENTS OF MULTIPLE APPLICATION INSTANCES USING THE SAME SOURCE IP ADDRESS**

Date: November 7, 2005

Mail Stop Appeal Brief-Patents
Commissioner for Patents
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Alexandria, VA 22313-1450

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Erin A. Campion

TRANSMITTAL OF APPEAL BRIEF
(PATENT APPLICATION--37 C.F.R. § 41.37)

1. Transmitted herewith is the APPEAL BRIEF for the above-identified application, pursuant to the Notice of Appeal filed on August 3, 2005.

2. This application is filed on behalf of
☐ a small entity.

3. Pursuant to 37 C.F.R. § 41.20(b)(2), the fee for filing the Appeal Brief is:

☐	small entity	$250.00
☒	other than small entity	$500.00

Appeal Brief fee due **$500.00**

☒ Any additional fee or refund may be charged to Deposit Account 09-0461.

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Erin A. Campion

APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. §41.37

Sir:

This Appeal Brief is filed pursuant to the "Notice of Appeal to the Board of Patent Appeals and Interferences" mailed August 3, 2005.

Real Party In Interest

The real party in interest is assignee International Business Machines Corporation, Armonk, New York.

Related Appeals and Interferences

Appellants are aware of no appeals or interferences that would be affected by the present appeal.

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Status of Claims

Appellants appeal the final rejection of Claims 1-11, 13-24, 26-30, 32, 34 and 36-47, which as of the filing date of this Brief remain under consideration. Claims 12, 25, 31, 33 and 35 have been indicated as allowed. The attached Appendix A presents the claims at issue as finally

rejected and allowed in the Final Office Action of May 3, 2005 (hereinafter "Final Office Action") and the Advisory Action of July 19, 2005 (hereinafter "Advisory Action").

Status of Amendments

The attached Appendix A presents the pending claims and each of the pending claims' corresponding status. All amendments in the present case have been entered.

Summary of the Claimed Subject Matter

The present application includes rejected Independent Claims 1, 13, 38 and 44-47. The claims are method, system, computer program product claims. Claim 1 is directed to a method of assigning a port for a connection originated by one of multiple application instances. *See* Specification, page 7, lines 27-30. The multiple application instances execute on different data processing systems and use a common network address. *See* Specification, page 7, lines 27-30. An indication of available ports is provided for the common network address to each of the different data processing systems executing the multiple application instances. *See* Specification, page 7, lines 30-33. A port identified as available is selected as the port for the connection utilizing the common network address. *See* Specification, page 7, lines 33-35.

Independent Claims 44 and 46 are system and computer program product claims corresponding to Claim 1. The structure corresponding to the means for recitations of Claim 44 may be provided the port selection module 61. *See* Specification, page 18, lines 8-19.

Claim 13 is directed to a method of coordinating port assignments for connections utilizing a dynamic virtual Internet Protocol address (DVIPA) as a source address. *See* Specification, page 9, lines 8-12. The DVIPA is utilized as a source address for connections originated by a plurality of data processing systems. *See* Specification, page 9, lines 12-14. An indication of available ports associated with the DVIPA is maintained in a storage facility which is commonly accessible to communication protocol stacks of the plurality of data processing systems. *See* Specification, page 9, lines 15-19. A port for a connection utilizing the DVIPA is

selected as a source address based on the indication of available ports associated with the DVIPA in the storage facility. *See* Specification, page 9, lines 19-22.

Independent Claims 45 and 47 are system and computer program product claims corresponding to Claim 13. The structure corresponding to the means for recitations of Claim 45 may be provided the port selection module 61. *See* Specification, page 18, lines 8-19.

Independent Claim 38 is directed to a system for coordinating port assignments for connections utilizing a dynamic virtual Internet Protocol address (DVIPA) as a source address. Specification, page 9, lines 8-12. The DVIPA is utilized as a source address for connections originated by a plurality of data processing systems. Specification, page 9, lines 14-15. The system includes a plurality of communication protocol stacks that execute on the plurality of data processing systems. Specification, page 9, lines 8-25. A storage facility accessible to the plurality of communication protocol stacks is provided. Specification, page 9, lines 8-25. The plurality of communication protocol stacks are configured to maintain an indication of available ports associated with the DVIPA in the storage facility and select a port for a connection utilizing the DVIPA as a source address based on the indication of available ports associated with the DVIPA in the storage facility. Specification, page 9, lines 8-25.

Grounds of Rejection to Be Reviewed on Appeal

Claims 1-11, 13-17, 19-24, 26-30, 32, 34 and 36-47 stand rejected under 35 U.S.C. §103(a) as being unpatentable over United States Patent No. 6,247,057 to Barrera (hereinafter "Barrera").

Argument

I. Introduction

The pending claims are rejected as obvious under 35 U.S.C. § 103. To establish a prima facie case of obviousness, the prior art reference or references when combined must teach or suggest *all* the recitations of the claims, and there must be some suggestion or motivation, either

in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. M.P.E.P. §2143. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. M.P.E.P. §2143.01, citing *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990). As emphasized by the Court of Appeals for the Federal Circuit, to support combining references, evidence of a suggestion, teaching, or motivation to combine must be **clear and particular**, and this requirement for clear and particular evidence is not met by broad and conclusory statements about the teachings of references. *In re Dembiczak*, 50 U.S.P.Q.2d 1614, 1617 (Fed. Cir. 1999). The Court of Appeals for the Federal Circuit has further stated that, to support combining or modifying references, there must be **particular** evidence from the prior art as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed. *In re Kotzab*, 55 U.S.P.Q.2d 1313, 1317 (Fed. Cir. 2000).

Appellants respectfully submit that the pending claims are patentable over the cited references because the cited references fail to disclose or suggest the recitations of the pending claims.

I. The Section 103 Rejection

A. The Rejection of Independent Claims 1, 44 and 46

As stated above, Independent Claims 1, 44 and 46 stand rejected under 35 U.S.C. § 103 as being unpatentable over Barrera. Appellants respectfully submit that many of the recitations of these claims are neither disclosed nor suggested by the cited references. For example, Claim 1 recites:

> A method of assigning a port for a **connection originated by one of multiple application instances**, the multiple application instances **executing on different data processing systems** and **utilizing a common network address**, comprising:
>
> **providing an indication of available ports for the common network address to each of the different data processing systems executing the multiple application instances**; and

selecting a port identified as available as the port for the connection utilizing the common network address.

Independent Claims 44 and 46 contain corresponding system and computer program product recitations, respectively. Appellants respectfully submit that at least the highlighted portion of Claim 1 is neither disclosed nor suggested by the cited references for at least the reasons discussed herein

Barrera appears to relate to a system for allowing requests to multiple services that would otherwise use the same port. *See* Barrera, col. 6, lines 8-33. Barrera describes a problem where incoming requests to use a service specify the same port. The requests for different virtual services are differentiated by the IP address. Barrera, col. 6, line 64 to col. 7, line 13.[1] However, as described in Barrera, the operating system strips the IP address from the request and, therefore, all requests to the same port appear as a request to the same service. See Barrera, col. 6, lines 8-23. Barrera appears to solve this problem by associating different service instances with different predefined ports and then mapping the IP address of the request to the predefined ports so as to differentiate between service requests that would otherwise use the same port. See Barrera, col. 6, line 39 to col. 7, line 13. Barrera describes an endpoint ID creator that establishes the relationship between the designated endpoint IDs (*e.g.* the globally known port for the type of service) and the new endpoint ID (*e.g.* the remapped port for a particular instance of a virtual service). *See* Barrera, col. 8, lines 34-52. Thus, Barrera appears to relate to mapping of incoming requests to multiple service instances that share a common port identification from the requestor's perspective. The mapping is not made on a connection by connection basis, but appears to be static once established and does not appear to be responsive to a connection being established but, rather, is responsive to a service starting.

[1] Note that the references to the same IP address found at col. 7, lines 2-3 of Barrera appears to be in error as it is inconsistent with the table provided in col. 7. Furthermore, if the IP address of the requests are the same, then the system of Barrera does not appear to describe any mechanism for differentiating between the requested services. Thus, Appellants submit that the second reference to "192.56.85.7" at col. 7, line 3 of Barrera appears to be in error and should be to "192.56.85.8" to be consistent with the table.

In contrast to the re-mapping system of Barrera, embodiments of the present invention relate to port selection on a connection level basis for connections originated by applications that share a common network address. The Office Action of October 22, 2004 ("the Office Action") states that Barrera discloses a system and method for assigning a virtual port for a connection originated by one of the multiple applications. *See* Office Action, p. 3. However, the Office Action does not cite to any portion of Barrera to support such an assertion. As discussed above, Barrera relates to mapping incoming requests for use of a service to multiple instances of the service, not to assignments of ports for connections initiated by the services. As such, Appellants submit that the Office Action has failed to establish that Barrera discloses or suggests "a method of assigning a port for a connection originated by one of multiple application instances, the multiple application instances executing on different data processing systems and utilizing a common network address" as recited in Claim 1.

Furthermore, the Office Action does not address the language of Claim 1 that recites that the multiple application instances utilize a common network address. As is clear from the above cited portions of Barrera and despite the apparent typographic error in Barrera, the IP addresses appear to be different for the different instances of a service, but the ports are the same. In contrast, Claim 1 recites that the multiple application instances utilize a "common network address" and that the selected port is used "for the connection utilizing the common network address." Appellants submit that the portions of Barrera cited in the Office Action do not disclose or suggest the selection of ports for connections utilizing a common network address as recited in Claim 1.

With regard to the language of Claim 1 that recites "providing an indication of available ports for the common network address to each of the different data processing systems executing the multiple application instances," the Office Action does not address the recitations that the indication is provided "to each of the different data processing systems executing the multiple application instances," but merely cites to a portion of Barrera that discusses a mapping table. The citation to Barrera, col. 8, lines 53-63 does not appear to disclose or suggest that the table is provided to the processing systems executing application instances that are originating

connections. As such, Appellants submit that the cited portion of Barrera does not disclose or suggest these recitations of Claim 1.

The Office Action also cites to col. 6, line 64 to col. 7, line 13 of Barrera as disclosing the selection of a port as recited in Claim 1. However, as discussed above, Appellants submit that this portion of Barrera does not relate to the assignment of ports for connections utilizing a common network address but, instead, uses the network address as a differentiator and selects a port based on the different network addresses. See Barrera, table in col. 7. As such, Appellants submit that the cited portions of Barrera do not disclose or suggest "selecting a port identified as available as the port for the connection utilizing the common network address" as recited in Claim 1.

The Final Office Action points to several portions of Barrera to contradict Appellants argument that Berrera fails to teach assigning or selecting a port for a connection utilizing a common network address. *See* Final Office Action, pages 2 – 3. As discussed above, Barrera discusses associating different service instances with different predefined ports and then mapping the IP address of the request to the predefined ports so as to differentiate between service requests that would otherwise use the same port. *See* Barrera, col. 6, line 39 to col. 7, line 13. Barrera describes an endpoint ID creator that establishes the relationship between the designated endpoint IDs (*e.g.* the globally known port for the type of service) and the new endpoint ID (*e.g.* the remapped port for a particular instance of a virtual service). *See* Barrera, col. 8, lines 34-52. Thus, Barrera appears to relate to mapping of incoming requests to multiple service instances that share a common port identification from the requestor's perspective. The mapping is not made on a connection by connection basis, but appears to be static once established and does not appear to be responsive to a connection being established but, rather, is responsive to a service starting. In contrast to the re-mapping system of Barrera, embodiments of the present invention relate to port selection on a connection level basis for connections originated by applications that share a common network address.

Each of the portions of Barrera cited in the Final Office Action discuss "service level" not "connection level" assignments. For example, column 3, lines 21-27 of Barrera discusses "virtual services." Furthermore, the Final Office Action states:

> This step of generating and assigning a port for connection to a virtual service equates to the claimed limitation call for selecting a port for a connection. Although it appears to the client side that different IP addresses for virtual services are used, at a lower level however the same common IP address, i.e., real server IP address, would be used to route the application request to the correct location.

See Final Office Action, page 3. Appellants respectfully disagree. In particular, Barrera appears to relate to a system for allowing requests to multiple services that would otherwise use the same port. *See* Barrera, col. 6, lines 8-33. Again, in contrast to the re-mapping system of Barrera, embodiments of the present invention relate to port selection on a connection level basis for connections originated by applications that share a common network address. Furthermore, the Final Office Action does not point to any portion of the reference or any teaching in the art to support the statements in the Final Office Action set out above.

Accordingly, Barrera relates to mapping incoming requests for use of a service to multiple instances of the service, not to assignments of ports for connections initiated by the services. As such, Appellants submit that the Final Office Action, as well as the first Office Action, failed to establish that Barrera discloses or suggests "a method of assigning a port for a connection originated by one of multiple application instances, the multiple application instances executing on different data processing systems and utilizing a common network address" as recited in Claim 1. Thus, Claim 1 is patentable over the cited references for at least these additional reasons.

Furthermore, the Final Office Action does not address Appellants' argument that the first Office Action does not address the language of Claim 1 that recites that the multiple application instances utilize a common network address. As is clear from a reading of Barrera, the IP addresses appear to be different for the different instances of a service, but the ports are the same. In contrast, Claim 1 recites that the multiple application instances utilize a "common network address" and that the selected port is used "for the connection utilizing the common

network address." Appellants submit that none of the cited portions of Barrera disclose or suggest the selection of ports for connections utilizing a common network address as recited in Claim 1. Thus, Claim 1 is patentable over the cited references for at least these additional reasons.

The Final Office Action further fails to address Appellants' argument that the previous Office Action fails to address the language of Claim 1 that recites "providing an indication of available ports for the common network address to each of the different data processing systems executing the multiple application instances." In particular, neither Office Action addresses the recitations that the indication is provided "to each of the different data processing systems executing the multiple application instances," but merely cites to a portion of Barrera that discusses a mapping table. The citation to Barrera, col. 8, lines 53-63 does not appear to disclose or suggest that the table is provided to the processing systems executing application instances that are originating connections. As such, Appellants submit that the cited portion of Barrera does not disclose or suggest these recitations of Claim 1. Thus, Claim 1 is patentable over the cited references for at least these additional reasons.

In light of the above discussion, Appellants submit that Claim 1 and the claims that depend from Claim 1 are neither disclosed nor suggested by the cited portions of Barrera. Recitations corresponding to those of Claim 1 are also found in independent Claims 44 and 46 and, Appellants submit that these claims are also patentable over the cited portions of Barrera for analogous reasons. Accordingly, Appellants respectfully request reversal of the rejections with respect to these claims for at least the reasons discussed herein.

B. The Rejection of Independent Claims 13, 45 and 47

As stated above, Independent Claims 13, 45 and 47 stand rejected under 35 U.S.C. § 103 as being unpatentable over Barrera. Appellants respectfully submit that many of the recitations of these claims are neither disclosed nor suggested by the cited references. For example, Claim 13 recites:

> A method of **coordinating port assignments for connections utilizing a dynamic virtual Internet Protocol address (DVIPA) as a source address,** wherein the

DVIPA is utilized as a source address for connections originated by a plurality of data processing systems, comprising:

maintaining an indication of available ports associated with the DVIPA in a storage facility which is commonly accessible to communication protocol stacks of the plurality of data processing systems; and

selecting a port for a connection utilizing the DVIPA as a source address based on the indication of available ports associated with the DVIPA in the storage facility.

Independent Claims 45 and 47 contain corresponding system and computer program product recitations, respectively. Appellants submit that at least the highlighted portions of Claim 13 are not disclosed or suggested by the cited portions of Barrera. Claim 13 is rejected based on grounds similar to that of Claim 1. See Office Action, p. 4. To the extent that the language of Claim 13 is analogous to that of Claim 1, Appellants submit that Claim 1 is patentable over the cited portions of Barrera for reasons analogous to those discussed above with reference to Claim 1. Furthermore, Claim 13 expressly recites the use of a dynamic virtual IP address (DVIPA). Appellants can find no reference or corresponding recitations of the cited portions of Barrera that would disclose or suggest the use of a DVIPA with the system of Barrera. Furthermore, Appellants can find no reference in the cited portions of Barrera that disclose that the indication of available ports is stored in a commonly accessible storage facility where the storage facility is accessible to the data processing systems that are originating the connections. As such, Appellants submit that Claim 13 and the claims that depend from Claim 13 are patentable over the cited portions of Barrera for at least these reasons.

The Final Office Action states that Barrera teaches dynamic virtual IP addresses because Barrera discusses virtual services. However, as stated on page 3 of the present application, a dynamic VIPA may be automatically moved from protocol stack to protocol stack in a predefined manner to overcome failures of a particular protocol stack. Appellants can find no reference or corresponding recitations of the cited portions of Barrera that would disclose or suggest the use of a DVIPA with the system of Barrera. Furthermore, Appellants can find no reference in the cited portions of Barrera that disclose that the indication of available ports is stored in a commonly accessible storage facility where the storage facility is accessible to the

data processing systems that are originating the connections. Accordingly, Appellants submit that Claim 13 and the claims that depend from Claim 13 are patentable over the cited portions of Barrera for at least these additional reasons. Recitations corresponding to those of Claim 13 are also found in independent Claims 45 and 47 and, Appellants submit that these claims are also patentable over the cited portions of Barrera for analogous reasons.

In light of the above discussion, Appellants submit that Claim 13 and the claims that depend from Claim 13 are neither disclosed nor suggested by the cited portions of Barrera. Recitations corresponding to those of Claim 13 are also found in independent Claims 45 and 47 and, Appellants submit that these claims are also patentable over the cited portions of Barrera for analogous reasons. Accordingly, Appellants respectfully request reversal of the rejections with respect to these claims for at least the reasons discussed herein.

C. **The Rejection of Independent Claim 38**

As stated above, Independent Claim 38 stands rejected under 35 U.S.C. § 103 as being unpatentable over Barrera. Appellants respectfully submit that many of the recitations of these claims are neither disclosed nor suggested by the cited references. For example, Claim 38 recites:

> A system for coordinating port assignments for connections utilizing a dynamic virtual Internet Protocol address (DVIPA) as a source address, wherein the DVIPA is utilized as a source address for connections originated by a plurality of data processing systems, comprising:
>
> a plurality of communication protocol stacks executing on the plurality of data processing systems;
>
> a storage facility accessible to the plurality of communication protocol stacks; and
>
> wherein the plurality of communication protocol stacks are configured to maintain an indication of available ports associated with the DVIPA in the storage facility and select a port for a connection utilizing the DVIPA as a source address based on the indication of available ports associated with the DVIPA in the storage facility.

Appellants submit that to the extent Claim 38 has recitations analogous to those of Claim 13, that Claim 38 and the claims that depend from Claim 38 are patentable over the cited portions of Barrera for at least reasons analogous to those discussed above with reference to Claim 13.

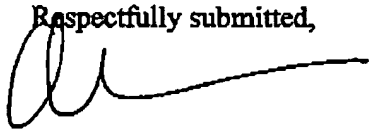
In light of the above discussion, Appellants submit that Claim 38 and the claims that depend from Claim 38 are neither disclosed nor suggested by the cited portions of Barrera. Accordingly, Appellants respectfully request reversal of the rejections with respect to these claims for at least the reasons discussed herein.

Conclusion

In light of the above, Appellants request reversal of the rejections of the claims, allowance of the claims and passing of the application to issue.

It is not believed that an extension of time and/or additional fee(s) are required, beyond those that may otherwise be provided for in documents accompanying this paper. In the event, however, that an extension of time is necessary to allow consideration of this paper, such an extension is hereby petitioned for under 37 C.F.R. §1.136(a). Any additional fees believed to be due in connection with this paper may be charged to Deposit Account No. 09-0461.

Respectfully submitted,



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APPENDIX A – CLAIMS APPENDIX

1. (Original) A method of assigning a port for a connection originated by one of multiple application instances, the multiple application instances executing on different data processing systems and utilizing a common network address, comprising:

providing an indication of available ports for the common network address to each of the different data processing systems executing the multiple application instances; and

selecting a port identified as available as the port for the connection utilizing the common network address.

2. (Original) The method of Claim 1, wherein providing an indication of available ports comprises maintaining an identification of available ports associated with the common network address in a storage accessible by each of the multiple data processing systems; and

wherein selecting a port comprises selecting a port identified as available in the storage accessible by each of the data processing systems.

3. (Original) The method of Claim 2, wherein the step of selecting a port identified as available is responsive to the one of the multiple applications requesting to establish a connection utilizing the common network address as a source address for the connection.

4. (Original) The method of Claim 2, wherein the common network address is a virtual Internet Protocol address.

5. (Original) The method of Claim 2, wherein the identification of available ports comprises an identification of ports associated with existing connections utilizing the common network address such that ports which are not identified as associated with existing connections are identified as available.

6. (Original) The method of Claim 2, further comprising establishing the connection utilizing the selected port and the common network address as a source network address and port of the connection.

7. (Original) The method of Claim 6, wherein establishing the connection further comprises identifying the selected port as unavailable in the storage accessible by each of the data processing systems.

8. (Original) The method of Claim 7, further comprising:

terminating the connection utilizing the selected port and the common network address; and

identifying the selected port as available in the storage accessible by each of the data processing systems.

9. (Original) The method of Claim 2, wherein the different data processing systems comprise a Sysplex and the storage accessible by each of the data processing systems comprises a coupling facility.

10. (Original) The method of Claim 9, wherein the steps of maintaining an identification of available ports associated with the common network address in a storage accessible by each of the data processing systems and selecting a port identified as available in the storage accessible by each of the data processing systems are carried out by communication protocol stacks of the data processing systems.

11. (Original) The method of Claim 10, wherein the step of maintaining an identification of available ports associated with the common network address further comprises:

maintaining a first structure in the coupling facility which indicates whether the port is

available for assignment by any of the communication protocol stacks; and

maintaining a second structure in the coupling facility for each of the communication protocol stacks which indicates which ports are in use by the corresponding communication protocol stack.

12. (Previously Presented) A method of assigning a port for a connection originated by one of multiple application instances, the multiple application instances executing on different data processing systems and utilizing a common network address, comprising:

providing an indication of available ports for the common network address to each of the different data processing systems executing the multiple application instances; and

selecting a port identified as available as the port for the connection utilizing the common network address;

wherein providing an indication of available ports comprises maintaining an identification of available ports associated with the common network address in a storage accessible by each of the multiple data processing systems;

wherein selecting a port comprises selecting a port identified as available in the storage accessible by each of the data processing systems;

wherein the different data processing systems comprise a Sysplex and the storage accessible by each of the data processing systems comprises a coupling facility;

wherein the steps of maintaining an identification of available ports associated with the common network address in a storage accessible by each of the data processing systems and selecting a port identified as available in the storage accessible by each of the data processing systems are carried out by communication protocol stacks of the data processing systems; and

wherein the step of maintaining an identification of available ports associated with the common network address further comprises:

maintaining a first structure in the coupling facility which indicates whether the port is available for assignment by any of the communication protocol stacks; and

maintaining a second structure in the coupling facility for each of the communication protocol stacks which indicates which ports are in use by the corresponding communication protocol stack;

detecting a failure of one of the communication protocol stacks; and

revising the first structure based on the second structure corresponding to the failed communication protocol stack so as to indicate that the ports in used by the failed communication protocol stack are available for use.

13. (Original) A method of coordinating port assignments for connections utilizing a dynamic virtual Internet Protocol address (DVIPA) as a source address, wherein the DVIPA is utilized as a source address for connections originated by a plurality of data processing systems, comprising:

maintaining an indication of available ports associated with the DVIPA in a storage facility which is commonly accessible to communication protocol stacks of the plurality of data processing systems; and

selecting a port for a connection utilizing the DVIPA as a source address based on the indication of available ports associated with the DVIPA in the storage facility.

14. (Original) The method of Claim 13, wherein maintaining an indication of available ports and selecting a port are carried out by the communication protocol stacks of the plurality of data processing systems.

15. (Original) The method of Claim 14, wherein maintaining an indication of available ports associated with the DVIPA comprises maintaining a structure in a coupling facility of a Sysplex, the structure indicating whether a port is in use by a connection utilizing the DVIPA as a source address.

16. (Original) The method of Claim 15, wherein selecting a port comprises:

accessing the coupling facility to obtain the structure; and

evaluating the structure to select a port which is not in use by a connection.

17. (Original) The method of Claim 16, further comprising updating the structure in the coupling facility to reflect that the selected port is in use by a connection utilizing the DVIPA as a source address.

18. (Original) The method of Claim 16, wherein accessing the coupling facility and updating the coupling facility comprise:

obtaining the structure from the coupling facility;

locking the structure in the coupling facility to prevent access to the structure by other communication protocol stacks; then

revising the structure to reflect that the selected port is in use;

returning the structure to the coupling facility; and then

unlocking the structure in the coupling facility to allow access to the structure by other communication protocol stacks.

19. (Previously Presented) The method of Claim 18, wherein the structure comprises a bitmap and wherein revising the structure comprises setting a bit of the bitmap to a predefined value to indicate that a port corresponding to the bit is in use.

20. (Previously Presented) The method of Claim18, wherein the structure comprises an enumerated list of available ports and wherein revising the structure comprises removing selected port from the enumerated list.

21. (Previously Presented) The method of Claim 14, wherein maintaining an indication of available ports and selecting a port are selectively carried out by the communication

protocol stacks responsive to a predefined keyword being provided in a configuration statement which defines the DVIPA to the communication protocol stack.

22. (Previously Presented) The method of Claim 21, wherein the configuration statement is at least one of a VIPADEFine statement, a VIPADISTribute statement and a VIPARANGE statement.

23. (Previously Presented) The method of Claim 21, further comprising updating the indication of available ports to reflect existing connections using the DVIPA if the predefined keyword is added to a configuration statement after initialization of a routing communication protocol stack.

24. (Previously Presented) The method of Claim 15, wherein maintaining a structure in a coupling facility further comprises updating the structure in the coupling facility to reflect that a port of a connection utilizing the DVIPA as a source address is not in use when the connection utilizing the DVIPA as a source address terminates.

25. (Previously Presented) A method of coordinating port assignments for connections utilizing a dynamic virtual Internet Protocol address (DVIPA) as a source address, wherein the DVIPA is utilized as a source address for connections originated by a plurality of data processing systems, comprising:

maintaining an indication of available ports associated with the DVIPA in a storage facility which is commonly accessible to communication protocol stacks of the plurality of data processing systems; and

selecting a port for a connection utilizing the DVIPA as a source address based on the indication of available ports associated with the DVIPA in the storage facility;

wherein maintaining an indication of available ports and selecting a port are carried out by the communication protocol stacks of the plurality of data processing systems;

wherein maintaining an indication of available ports associated with the DVIPA comprises maintaining a structure in a coupling facility of a Sysplex, the structure indicating whether a port is in use by a connection utilizing the DVIPA as a source address;

wherein maintaining a structure in a coupling facility further comprises updating the structure in the coupling facility to reflect that a port of a connection utilizing the DVIPA as a source address is not in use when the connection utilizing the DVIPA as a source address terminates; and

wherein updating the structure in the coupling facility ~~comprise~~ comprises:

obtaining the structure from the coupling facility;

locking the structure in the coupling facility to prevent access to the structure by other communication protocol stacks; then

revising the structure to reflect that the port associated with the terminated connection is not in use;

returning the structure to the coupling facility; and then

unlocking the structure in the coupling facility to allow access to the structure by other communication protocol stacks.

26. (Previously Presented) The method of Claim 25, wherein the structure comprises a bitmap and wherein revising the structure comprises setting a bit of the bitmap to a predefined value to indicate that a port corresponding to the bit is not in use.

27. (Previously Presented) The method of Claim 25, wherein the structure comprises an enumerated list of available ports and wherein revising the structure comprises adding the port associated with the terminated connection to the enumerated list.

28. (Previously Presented) The method of Claim 14, wherein maintaining an indication of available ports associated with the DVIPA comprises maintaining a copy of a connection routing hash table associated with the DVIPA in a coupling facility of a Sysplex, the connection routing hash table indicating source address and source port and destination address and destination port for connections utilizing the DVIPA.

29. (Previously Presented) The method of Claim 28, wherein selecting a port comprises:

determining a connection routing hash table entry for a source address and source port and a destination address and destination port of a connection utilizing the DVIPA as a source address;

evaluating the connection routing hash table in the coupling facility to determine if an entry exists corresponding to the determined connection routing hash table entry; and

selecting the port utilized in determining the connection routing hash table entry if a corresponding entry does not exist.

30. (Previously Presented) The method of Claim 28, further comprising updating the connection routing hash table in the coupling facility to incorporate the determined connection routing hash table entry.

31. (Previously Presented) A method of coordinating port assignments for connections utilizing a dynamic virtual Internet Protocol address (DVIPA) as a source address, wherein the DVIPA is utilized as a source address for connections originated by a plurality of data processing systems, comprising:

maintaining an indication of available ports associated with the DVIPA in a storage facility which is commonly accessible to communication protocol stacks of the plurality of data processing systems; and

selecting a port for a connection utilizing the DVIPA as a source address based on the indication of available ports associated with the DVIPA in the storage facility;

wherein maintaining an indication of available ports and selecting a port are carried out by the communication protocol stacks of the plurality of data processing systems;

wherein maintaining an indication of available ports associated with the DVIPA comprises maintaining a copy of a connection routing hash table associated with the DVIPA in a coupling facility of a Sysplex, the connection routing hash table indicating source address and source port and destination address and destination port for connections utilizing the DVIPA, the method further comprising updating the connection routing hash table in the coupling facility to incorporate the determined connection routing hash table entry; and

wherein evaluating the connection routing hash table and updating the connection routing hash table comprise:

obtaining the connection routing hash table from the coupling facility;

locking the structure in the coupling facility to prevent access to the connection routing hash table by other communication protocol stacks; then

incorporating the determined connection routing hash table entry into the connection routing hash table;

returning the connection routing hash table to the coupling facility; and then

unlocking the connection routing hash table in the coupling facility to allow access to the connection routing hash table by other communication protocol stacks.

32. (Previously Presented) The method of Claim 28, wherein maintaining a copy of a connection routing hash table in a coupling facility further comprises updating the connection routing hash table in the coupling facility to reflect that a connection utilizing the DVIPA as a source address is not in use when the connection utilizing the DVIPA as a source address terminates.

33. (Previously Presented) A method of coordinating port assignments for

connections utilizing a dynamic virtual Internet Protocol address (DVIPA) as a source address, wherein the DVIPA is utilized as a source address for connections originated by a plurality of data processing systems, comprising:

maintaining an indication of available ports associated with the DVIPA in a storage facility which is commonly accessible to communication protocol stacks of the plurality of data processing systems; and

selecting a port for a connection utilizing the DVIPA as a source address based on the indication of available ports associated with the DVIPA in the storage facility;

wherein maintaining an indication of available ports and selecting a port are carried out by the communication protocol stacks of the plurality of data processing systems;

wherein maintaining an indication of available ports associated with the DVIPA comprises maintaining a copy of a connection routing hash table associated with the DVIPA in a coupling facility of a Sysplex, the connection routing hash table indicating source address and source port and destination address and destination port for connections utilizing the DVIPA;

wherein maintaining a copy of a connection routing hash table in a coupling facility further comprises updating the connection routing hash table in the coupling facility to reflect that a connection utilizing the DVIPA as a source address is not in use when the connection utilizing the DVIPA as a source address terminates; and

wherein updating the connection routing hash table in the coupling facility comprises:

obtaining the connection routing hash table from the coupling facility;

locking the connection routing hash table in the coupling facility to prevent access to the connection routing hash table by other communication protocol stacks; then

revising the connection routing hash table to remove an entry corresponding to the terminated connection;

returning the connection routing hash table to the coupling facility; and then

unlocking the connection routing hash table in the coupling facility to allow access to the connection routing hash table by other communication protocol stacks.

34. (Previously Presented) The method of Claim 13, wherein the step of maintaining an indication of available ports further comprises:

maintaining a first structure in the storage facility which indicates whether the port is available for assignment by any of the communication protocol stacks; and

maintaining a second structure in the storage facility for each of the communication protocol stacks which indicates which ports are in use by the corresponding communication protocol stack.

35. (Previously Presented) A method of coordinating port assignments for connections utilizing a dynamic virtual Internet Protocol address (DVIPA) as a source address, wherein the DVIPA is utilized as a source address for connections originated by a plurality of data processing systems, comprising:

maintaining an indication of available ports associated with the DVIPA in a storage facility which is commonly accessible to communication protocol stacks of the plurality of data processing systems; and

selecting a port for a connection utilizing the DVIPA as a source address based on the indication of available ports associated with the DVIPA in the storage facility;

wherein the step of maintaining an indication of available ports further comprises:

maintaining a first structure in the storage facility which indicates whether the port is available for assignment by any of the communication protocol stacks; and

maintaining a second structure in the storage facility for each of the communication protocol stacks which indicates which ports are in use by the corresponding communication protocol stack;

detecting a failure of one of the communication protocol stacks; and

revising the first structure based on the second structure corresponding to the failed communication protocol stack so as to indicate that the ports in used by the failed communication protocol stack are available for use.

36. (Previously Presented) The method of Claim 13, further comprising the steps of:

receiving a bind request to the DVIPA which specifies a port;

determining if the specified port is available based on the indication of available ports associated with the DVIPA in the storage facility; and

rejecting the bind request if the specified port is not indicated as available.

37. (Previously Presented) The method of Claim 36, further comprising the steps of:

accepting the bind request if the specified port is indicated as available; and

updating the indication of available ports in the storage facility if the bind request is accepted.

38. (Previously Presented) A system for coordinating port assignments for connections utilizing a dynamic virtual Internet Protocol address (DVIPA) as a source address, wherein the DVIPA is utilized as a source address for connections originated by a plurality of data processing systems, comprising:

a plurality of communication protocol stacks executing on the plurality of data processing systems;

a storage facility accessible to the plurality of communication protocol stacks; and

wherein the plurality of communication protocol stacks are configured to maintain an indication of available ports associated with the DVIPA in the storage facility and select a port for a connection utilizing the DVIPA as a source address based on the indication of available ports associated with the DVIPA in the storage facility.

39. (Previously Presented) The system of Claim 38, wherein the storage facility comprises a coupling facility of a Sysplex and wherein the communication protocol stacks are further configured to maintaining a structure in the coupling facility, the structure indicating whether a port is in use by a connection utilizing the DVIPA as a source address.

40. (Previously Presented) The system of Claim 39, wherein the structure comprises a bitmap and wherein the communication protocol stacks are configured to set a bit of the bitmap to a predefined value to indicate that a port corresponding to the bit is in use.

41. (Previously Presented) The system of Claim 39, wherein the structure comprises an enumerated list of available ports and wherein the communication protocol stacks are configured to remove the selected port from the enumerated list.

42. (Previously Presented) The system of Claim 39, the communication protocol stacks are further configured to maintain a copy of a connection routing hash table associated with the DVIPA in the coupling facility, the connection routing hash table indicating source address and source port and destination address and destination port for connections utilizing the DVIPA.

43. (Previously Presented) The system of Claim 42, wherein the communication protocol stacks are further configured to select the port by determining a connection routing hash table entry for a source address and source port and a destination address and destination port of a connection utilizing the DVIPA as a source address, evaluating the connection routing hash table in the coupling facility to determine if an entry exists corresponding to the determined connection routing hash table entry and selecting the port utilized in determining the connection routing hash table entry if a corresponding entry does not exist.

44. (Previously Presented) A system for assigning a port for a connection originated by one of multiple application instances, the multiple application instances executing on different data processing systems and utilizing a common network address, comprising:

means for providing an indication of available ports for the common network address to each of the different data processing systems executing the multiple application instances; and

means for selecting a port identified as available as the port for the connection utilizing the common network address.

45. (Previously Presented) A system for coordinating port assignments for connections utilizing a dynamic virtual Internet Protocol address (DVIPA) as a source address, wherein the DVIPA is utilized as a source address for connections originated by a plurality of data processing systems, comprising:

means for maintaining an indication of available ports associated with the DVIPA in a storage facility which is commonly accessible to communication protocol stacks of the plurality of data processing systems; and

means for selecting a port for a connection utilizing the DVIPA as a source address based on the indication of available ports associated with the DVIPA in the storage facility.

46. (Previously Presented) A computer program product for assigning a port for a connection originated by one of multiple application instances, the multiple application instances executing on different data processing systems and utilizing a common network address, comprising:

a computer readable media having computer readable program code embodied therein, the computer readable program code comprising:

computer readable program code provides an indication of available ports for the common network address to each of the different data processing systems executing the multiple application instances; and

computer readable program code which selects a port identified as available as the port for the connection utilizing the common network address.

47. (Previously Presented) A computer program product for coordinating port assignments for connections utilizing a dynamic virtual Internet Protocol address (DVIPA) as a

source address, wherein the DVIPA is utilized as a source address for connections originated by a plurality of data processing systems, comprising:

a computer readable media having computer readable program code embodied therein, the computer readable program code comprising:

computer readable program code which maintains an indication of available ports associated with the DVIPA in a storage facility which is commonly accessible to communication protocol stacks of the plurality of data processing systems; and

computer readable program code which selects a port for a connection utilizing the DVIPA as a source address based on the indication of available ports associated with the DVIPA in the storage facility.

APPENDIX B – EVIDENCE APPENDIX

(NONE)

APPENDIX C – RELATED PROCEDINGS

(NONE)